

CLAIMS

What is claimed is:

1. A conferencing system comprising:
a server for relaying compressed audio streams received by the server from
5 conferencing stations to conferencing stations of the system; and
a plurality of conferencing stations, where each conferencing station
comprises:
a processor,
a microphone coupled through audio capture circuitry to the processor,
10 a network interface apparatus coupled to the processor,
audio output apparatus,
memory coupled to the processor, the memory having stored therein
program modules comprising:
an audio compression module for receiving audio from the
15 audio capture circuitry, compressing the received audio
into compressed audio and for transmitting the
compressed audio through the network interface
apparatus as a compressed audio stream, and
an audio mixer module for receiving at least one compressed
20 audio stream from a conferencing station as relayed by
the server through the network interface apparatus, for
decompressing and mixing the at least one compressed
audio stream into mixed audio, and for providing the
mixed audio to the audio output apparatus.
- 25 2 The conferencing system of claim 1, wherein the audio mixer module
of each station receives, decompresses, and mixes a plurality of compressed audio
streams relayed through the server.
3. The conferencing system of claim 2, wherein at least one said
conferencing station further comprises:
30 a video source,

a compression module in the memory for receiving video from the video source, for compressing the video into a first video stream, and for transmitting the first video stream to the server,
a video decompression module for receiving a second video stream,
5 decompressing the second video stream into images, and
a display subsystem for presenting the images to a user.

4. The conferencing system of claim 2, wherein the server comprises a relay module for receiving audio streams from the conferencing stations, for combining the received audio streams into a composite audio stream, and for
10 retransmitting the composite audio stream to the conferencing stations, wherein the composite audio stream is created without decompressing the received audio streams.

5. The conferencing system of claim 4, wherein the relay module selects a maximum number of received audio streams for retransmission according to a priority scheme incorporating a predetermined conferencing station priority.

15 6. The conferencing system of claim 4, wherein a first said conferencing station receives the composite audio stream, decompresses selected audio streams from individual compressed audio streams of the composite audio stream, the selected audio streams determined such that audio from the first said conferencing station relayed through the server is discarded by the first conferencing station.

20 7. The conferencing system of claim 2, wherein the server comprises a relay module for receiving audio streams from the conferencing stations, for combining the received audio streams into a composite audio stream, and for retransmitting the composite audio stream to the conferencing stations, wherein the composite audio stream is created by interleaving compressed audio from packets of
25 the received audio streams.

8. A conferencing station comprising
a processor,
a microphone coupled through audio capture circuitry to the processor,
a network interface apparatus coupled to the processor,

audio output apparatus,

memory coupled to the processor, the memory having recorded therein

program modules comprising:

an audio compression module audio from the audio capture circuitry

5 and for transmitting compressed audio through the network
interface apparatus; and

an audio mixer module for receiving compressed audio streams

through the network interface apparatus from a plurality of
conferencing stations, for decompressing and mixing the audio
10 streams into mixed audio, and for providing the mixed audio to
the audio output apparatus.

9. The conferencing station of claim 8, wherein the audio mixer module
receives the compressed audio streams as a composite audio stream from the server,
and wherein the conferencing station decompresses selected audio streams, the
15 selected audio streams being selected from compressed audio streams of the
composite audio stream selected such that audio from the first said conferencing
station relayed through the server is not decompressed by the first conferencing
station.

10. The conferencing station of claim 8, further comprising a video source,
20 and wherein the program modules further comprise a video compression module for
compressing video from the video source and for transmitting compressed video
through the network interface.

11. A computer software product comprising a machine readable media
having recorded thereon machine readable code for:
25 an audio compression modules for receiving audio from audio capture
circuitry, compressing the audio, and for transmitting compressed
audio through network interface apparatus to a server; and
an audio mixer module for receiving a composite compressed audio streams
through the network interface apparatus from a server, for selecting
30 audio streams from the composite audio stream, for decompressing and

mixing the selected audio streams, and for providing audio to the audio output apparatus.

12. A method of conferencing comprising the steps of:

at each of a plurality of conferencing stations, compressing audio into compressed audio, and transmitting the compressed audio as a compressed audio stream to a server;

at the server, combining the compressed audio streams from a plurality of conferencing stations into a composite stream;

distributing the composite stream over a network to the plurality of conferencing stations;

at at least one conferencing station, decompressing and mixing a plurality of audio streams of the composite stream into a reconstructed audio stream; and

driving speakers with the reconstructed audio stream.

13. A method of generating a composite compressed audio stream for use in a conferencing system comprising the steps of:

receiving a plurality of compressed incoming audio streams at a server, where each compressed audio stream comprises a sequence of blocks of compressed audio data;

copying blocks of compressed audio data from a plurality of the compressed incoming audio streams into the composite audio stream;

inserting routing information into the composite audio stream; and

inserting identification information into the composite audio stream, the identification information comprising a count of audio streams present in the composite audio stream.

14. The method of claim 13, wherein blocks of compressed audio data are selected for copying into the composite audio stream according to a priority scheme such that compressed audio blocks of incoming audio streams associated with conference moderators have priority for copying into the composite audio stream over compressed audio blocks of other incoming audio streams.